AMENDMENTS TO THE SPECIFICATION

1. Please amend the second paragraph beginning at page 20 as follows:

Marked-up paragraph:

The transmission of packets associated with delivery and delay limit guarantees, referred to as real-time packets, is now described. Such packets may, for example, be associated with real-time applications. The association between a real-time packet and a real-time application may, for example, be through packet flow. A packet flow associated with a real-time application may be identified by some set of packet header field values that are common to all packets within the packet flow. Real-time packets may also be handled by the switch 2. For example, processing of real-time packets sent by the host 1 to the switch 2 requires that the host 1 coordinate its guaranteed transmissions with the switch 2. The host 1 will further send its real-time packets in accordance with a predetermined, allocated schedule. In order to perform such operations, the host 1 must have a common time reference ~~between it's packet~~ transmitter and the relevant receiver in the switch 2. In the disclosed system, this is enabled through the following process. First, the switch

ATTORNEY DOCKET NO. CETA-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

2 sends an Ethernet packet to the receiver 50 within the host 1. This packet will be identified by the switch 2 as containing reference information. The receiver 50 within the host 1 then uses the reference packet, which is also referred to as a "heartbeat" packet, to determine the start of a schedule interval. The switch 2 operates to send the heartbeat packet with sufficient regularity so that the receiver 50 in the host 1 can adequately determine the beginning of its schedule interval. For example, the receiver 50 may average the timing information gathered from the receipt of multiple heartbeat packets to provide a reference lock. In this way the host transmitter 52 may be effectively phase-locked to a reference source from the switch 2. All ports of the switch 2 which are used to support the disclosed scheduled service are able to emit the heartbeat packets. The heartbeat packets need not need be sent at regular intervals, since each heartbeat packet contains information within its packet data field that may be used to determine its phase relative to the switch's schedule interval. For purposes of illustration, the heartbeat packets will be described as being provided at regular intervals in the present description. As shown in the embodiment of Fig. 1, a master clock system 65, having connections 69 to all receive and transmit control logic within the switch 2, may be used to provide

ATTORNEY DOCKET NO. CETA-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

the schedule interval to the receive and transmit control logic within the switch 2. The master clock system 65 is shown responsive to an external clock reference 71, such as the above discussed received heartbeat packets.

Clean copy of the paragraph:

The transmission of packets associated with delivery and delay limit guarantees, referred to as real-time packets, is now described. Such packets may, for example, be associated with real-time applications. The association between a real-time packet and a real-time application may, for example, be through packet flow. A packet flow associated with a real-time application may be identified by some set of packet header field values that are common to all packets within the packet flow. Real-time packets may also be handled by the switch 2. For example, processing of real-time packets sent by the host 1 to the switch 2 requires that the host 1 coordinate its guaranteed transmissions with the switch 2. The host 1 will further send its real-time packets in accordance with a predetermined, allocated schedule. In order to perform such operations, the host 1 must have a common time reference between its packet transmitter and

ATTORNEY DOCKET NO. CETA-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

the relevant receiver in the switch 2. In the disclosed system, this is enabled through the following process. First, the switch 2 sends an Ethernet packet to the receiver 50 within the host 1. This packet will be identified by the switch 2 as containing reference information. The receiver 50 within the host 1 then uses the reference packet, which is also referred to as a "heartbeat" packet, to determine the start of a schedule interval. The switch 2 operates to send the heartbeat packet with sufficient regularity so that the receiver 50 in the host 1 can adequately determine the beginning of its schedule interval. For example, the receiver 50 may average the timing information gathered from the receipt of multiple heartbeat packets to provide a reference lock. In this way the host transmitter 52 may be effectively phase-locked to a reference source from the switch 2. All ports of the switch 2 which are used to support the disclosed scheduled service are able to emit the heartbeat packets. The heartbeat packets need not need be sent at regular intervals, since each heartbeat packet contains information within its packet data field that may be used to determine its phase relative to the switch's schedule interval. For purposes of illustration, the heartbeat packets will be described as being provided at regular intervals in the present description. As shown in the embodiment of Fig. 1,

ATTORNEY DOCKET NO. CETA-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

a master clock system 65, having connections 69 to all receive and transmit control logic within the switch 2, may be used to provide the schedule interval to the receive and transmit control logic within the switch 2. The master clock system 65 is shown responsive to an external clock reference 71, such as the above discussed received heartbeat packets.

2. Please replace the first paragraph beginning on page 22 as follows:

Marked-up copy of the paragraph:

The heartbeat packet may also convey other information, of an administrative nature. The heartbeat packet's primary function, however, is to provide a correct timing reference. Any host which receives the packet, will ~~adjust it's internal~~ adjust its internal reference to match, using an averaging algorithm. The heartbeat packets allow any host or any network of hosts to derive a timing reference from a common source. In this way, all local hosts or ports, which need to transmit guaranteed data in the form of real-time packets, will have an accurate, local frame of

ATTORNEY DOCKET NO. CETA-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

reference. Every potential host-transmitter is thus referenced to the switches' reference. In any collection of switches, referred to herein as a "schedule domain", the heartbeat can originate from a single switch. Each switch in the network can then be configured to receive the heartbeat from at least one port and to send heartbeats out of a number of "downstream" ports, such that the heartbeat packets are distributed through the network of switches in a tree configuration, with the heartbeat source being the root of the tree.

Clean copy of the paragraph:

The heartbeat packet may also convey other information, of an administrative nature. The heartbeat packet's primary function, however, is to provide a correct timing reference. Any host which receives the packet, will adjust its internal reference to match, using an averaging algorithm. The heartbeat packets allow any host or any network of hosts to derive a timing reference from a common source. In this way, all local hosts or ports, which need to transmit guaranteed data in the form of real-time packets, will have an accurate, local frame of reference. Every potential host-transmitter is thus referenced to the switches' reference. In any collection of switches, referred to herein as a "schedule

ATTORNEY DOCKET NO. CETA-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

domain", the heartbeat can originate from a single switch. Each switch in the network can then be configured to receive the heartbeat from at least one port and to send heartbeats out of a number of "downstream" ports, such that the heartbeat packets are distributed through the network of switches in a tree configuration, with the heartbeat source being the root of the tree.

3. Please replace the third paragraph beginning on page 35 as follows:

Marked-up copy of the paragraph:

Scheduled packets are transferred (switched) in a different manner. The network processor 303, 304, etc. is given a schedule by the routing CPU 307. The network processor 303, 304, etc. will check the schedule as each new packet is received. If the network processor 303, 304, etc. determines that a schedule is in effect then it can directly forward the packet to the switch fabric, with information for the fabric, for the destination network processor 303, 304, etc. and the destination port. Likewise, on the transmit side of a network processor 303, 304, etc., the processor

ATTORNEY DOCKET NO. CETA-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313

will continually ~~check it's schedule~~ check its schedule. If a particular schedule is in effect, then the network processor will not transmit a queued packet but will instead directly forward a packet currently being received via the fabric interface 319.

Clean copy of the paragraph:

Scheduled packets are transferred (switched) in a different manner. The network processor 303, 304, etc. is given a schedule by the routing CPU 307. The network processor 303, 304, etc. will check the schedule as each new packet is received. If the network processor 303, 304, etc. determines that a schedule is in effect then it can directly forward the packet to the switch fabric, with information for the fabric, for the destination network processor 303, 304, etc. and the destination port. Likewise, on the transmit side of a network processor 303, 304, etc., the processor will continually check its schedule. If a particular schedule is in effect, then the network processor will not transmit a queued packet but will instead directly forward a packet currently being received via the fabric interface 319.

ATTORNEY DOCKET NO. CETA-001XX
WEINGARTEN, SCHURGIN,
GAGNEBIN & LEBOVICI LLP
TEL. (617) 542-2290
FAX. (617) 451-0313